

Route 27 over Harry's Brook
Officials briefing
March 9, 1988

History

The bridge over Harry's Brook in Princeton was built in 1908. Its overall length is 87 feet; existing clearance is under 3 feet. The bridge has two travel lanes averaging $11\frac{1}{2}$ to 12 feet wide, no sidewalks and minimal shoulders varying in width from $1\frac{1}{2}$ to 3 feet. The approach road has two 12-foot lanes and two 5-foot shoulders which taper to virtually nothing at the bridge.

Entries in old engineering survey logs describe the structure as having two arch openings in 1926, but a 1932 description with sketches and photos describes it as having two openings, one arch and one box. The 1932 description is applicable today.

In 1985, when the Department announced its plans to install guiderail along the weakened parapet, citizens and elected officials alike wrote to express their concern over making an "already narrow bridge" even narrower, thereby "creating a very dangerous situation for cyclists, motorists, joggers and pedestrians."

Current Status

The DOT has applied to the Federal Highway Administration (FHWA) twice for funding to replace the bridge. However, the existing bridge is not considered a bridge under the definition applied by the FHWA to determine eligibility for federal funding. It is considered as two separate structures, each under 20 feet in length, one a box culvert, one an arched structure.

The bridge is structurally, geometrically and hydraulically deficient and is in such poor condition overall that it cannot be rehabilitated.

The roof of the arch is badly deteriorated and permits extensive seepage from the roadway. The interior of the box culvert is in somewhat better condition. The stone sides of the bridge have been seriously deformed, thereby allowing the road surface to settle along the sides at the sites of the worst bulging, causing both maintenance and safety problems.

The exterior stone sides of the entire bridge are so badly deteriorated that the stones and connecting materials can be removed by hand.

The existing bridge is not properly aligned with the natural channel of the brook. The new bridge will permit an appropriate reorientation of the structure to the waterway.

There is no indication that construction of the new bridge will cause or increase any flood potential for property owners along the brook.

Traffic Volume

More than 10,500 vehicles cross the bridge daily, including hundreds of heavy commercial trucks and seventy-two 16-17 ton Suburban Transit buses.

Historical Status

The Department is conducting a cultural resources assessment of the bridge and the project area. To date, there appears to be nothing which would qualify the bridge for inclusion on either the state or national register of historic places.

The cultural resources assessment will be submitted to the NJDEP for evaluation as part of a larger environmental document as required under Executive Order 53.

Proposed Project

The DOT will replace the existing structure with a new bridge that meets current minimum Departmental and American Association of State Highway and Transportation Officials (AASHTO) design standards. The new bridge will have two 12-foot travel lanes and two 10-foot shoulders. A narrower structure cannot safely serve current and projected traffic volumes for this two-lane road.

Because the shoulders can be used safely by joggers, pedestrians and bicyclists, there will be no separate sidewalk on the bridge. The shoulders will also serve as emergency break-down lanes.

It has been suggested that a separate bicycle/pedestrian structure be built. A separate structure near the vehicle bridge would obscure the view of Carnegie Lake unless it were constructed some distance from Route 27 on property that is currently privately owned. The farther pedestrians and bicyclists must divert from the Route 27 bridge, the less likely it becomes that they will use a separate structure.

The project cannot qualify for federal bridge funds and available federal dollars in other potential funding categories are extremely limited. Therefore, the estimated \$1.6 million replacement will be funded with 100% state dollars. Required environmental work is expected to take approximately 18 months. Construction could take place in FY90, if funds are available, and take just one construction season to complete. It is expected that the Harrison Street bridge project will be completed prior to start of construction on this project.

As part of the project, shoulders on the roadway portion of Route 27 will be widened by approximately 5 feet within the project area, i.e., between Poe Road/Prospect Street on the southern end of the project area up to Shady Brook Drive on the northern end.

Every effort has been made, and will continue to be made, to reduce the impact of this project. The Department has investigated several ways to maintain traffic and minimize the impact on surrounding properties during construction. The method selected is construction of a temporary diversionary road adjacent to the bridge.

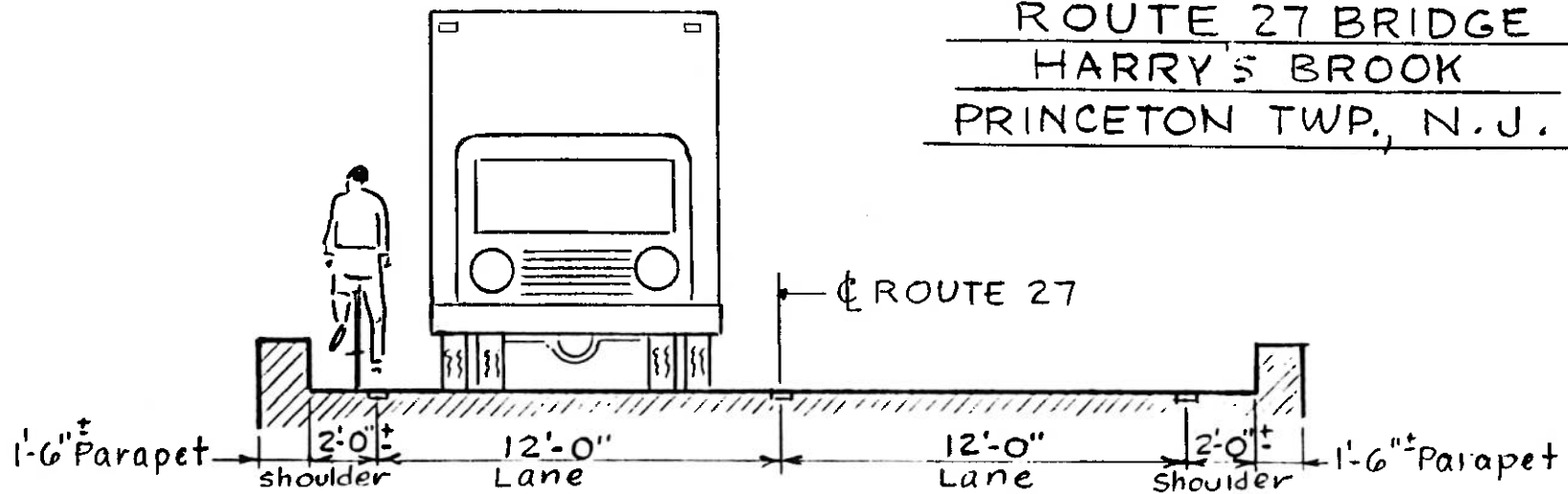
A detour route suggested in a local paper some months back was carefully reviewed. Given the kind and amount of traffic on Route 27 the proposed detour, which travels along narrow residential roads and includes a county bridge posted at 9 tons, the suggested route is unacceptable.

It has also been suggested that traffic be diverted to Route 1 around the project area. This would cause an insurmountable problem for those who rely on Suburban Transit bus transportation through the area, in addition to creating a long detour which will compound congestion on Route 1.

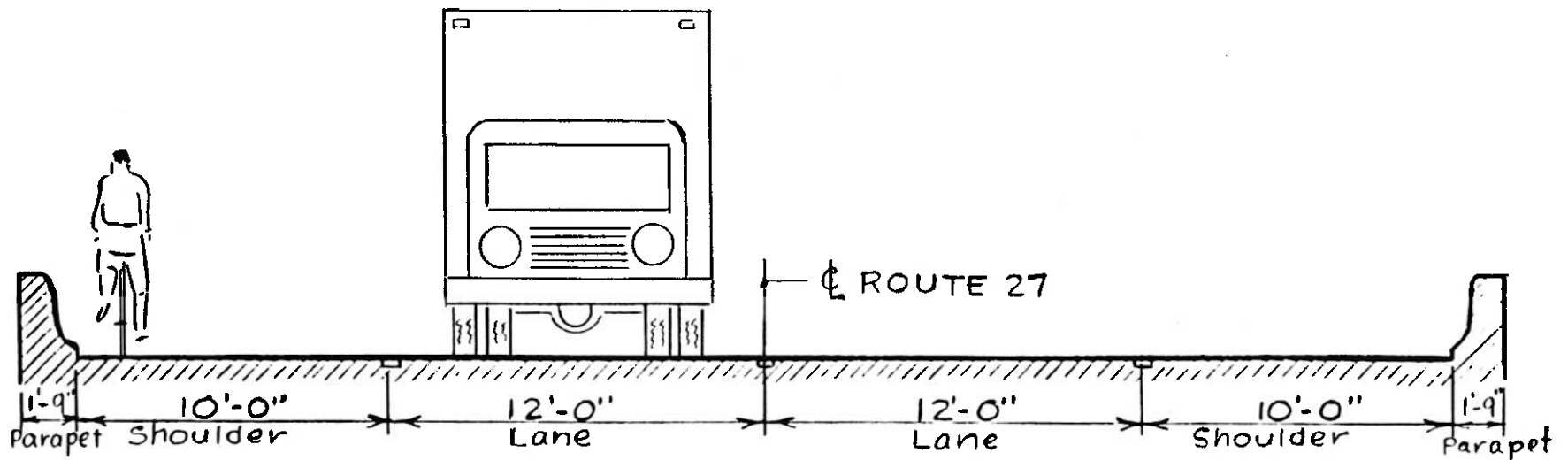
Although landscaped private property lines the roadway on both sides, placement of the diversionary road on the eastern (lake) side of Route 27 will affect fewer property owners and will have no impact on Carnegie Lake. There are fewer mature trees on that side of the road as well, and these have already been extensively trimmed back to clear utility wires. None of the existing trees or shrubs appear to be specimen plantings. When the diversionary road is removed, the affected properties will be landscaped.

Portions of the outer bridge walls will be stone-faced so as to cause the least intrusion into the ambience of the recreational areas along the bridge. Existing stonework cannot be preserved because of the severe deterioration of the stones themselves. The proposed exterior treatment (veneer) would not bear any portion of the load of the bridge but would only enhance the appearance of the structure.

ROUTE 27 BRIDGE
HARRY'S BROOK
PRINCETON TWP., N.J.



EXISTING



PROPOSED

